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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/523,179 03/10/00 ZANIBELLI

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022850 IM22/0815
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EXAMINER

ILDEBRANDO, C

ART UNIT

PAPER NUMBER

1754

DATE MAILED:

08/15/01

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

Office Action Summary

Application No.

09/523,179

Applicant(s)

ZANIBELLI ET AL.

Examiner

Christina Ildebrando

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 32-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-25 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 8 and 26-28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-5, 7-8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 1754

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-31, drawn to a catalyst composition, classified in class 502, subclass 66.
 - II. Claims 32-40, drawn to a hydrotreatment process, classified in class 208, subclass 1+.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in a materially different process of using, such as a catalyst for the purification of nitrogen oxides.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Kirsten Gruenberg on 7/23/01 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-31.

Affirmation of this election must be made by applicant in replying to this Office action.

Art Unit: 1754

Claims 32-40 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

6. Claims 5 and 26-28 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims 5 and 26-28 have not been further treated on the merits.

7. Applicant is advised that should claim 17 be found allowable, claim 18 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Information Disclosure Statement

8. The information disclosure statement filed 6/12/00 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that

Art Unit: 1754

portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 17-25 and 29-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claims 17-25 recite processes for preparing a catalyst composition without reciting active method steps throughout. It is suggested that applicant amend the claim to recite the processes using active method steps, i.e. "preparing a solution" and "impregnating the zeolite," instead of "a solution is prepared" and "the impregnation of a zeolite."

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-3, 5-7, and 9-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Oleck et al.

Oleck et al. (US 4,568,655) discloses a catalyst composition useful in hydrotreatment processes. The catalyst composition comprises one or more Group VIA

Art Unit: 1754

(i.e. molybdenum) or Group VIII (i.e. iron, nickel, or cobalt) metals impregnated on a base comprising beta zeolite admixed with one or more inorganic oxides (column 2, lines 40-48). The examples detail the use of a group VIA and Group VIII metal used in combination.

The catalyst base contains 5-30 % by weight zeolite beta and 95-70 % by weight of an inorganic oxide such as silica, alumina, silica-alumina (column 2, lines 48-53 and column 9, lines 58-65). Oleck et al. teaches that the zeolite is in a form which has sufficient acidic functionality and further teaches that it is in the hydrogen form (column 4, line 56 and column 5, line 6).

The reference further teaches that the preferred amount of Group VIII metal is between 2 and 10% by weight and that the preferred amount of Group VIA metal is between 5 and 20% by weight (column 9, lines 1-10). The amounts disclosed by the reference and the examples appear to meet the instantly claimed molar ratios.

Oleck et al. teaches that the catalyst composition is prepared by mixing the beta zeolite with the inorganic oxide, followed by extruding, calcining, exchanging to low sodium content, drying, impregnating with a group VI metal salt solution, drying impregnating with a group VIII metal salt solution, and re-calcining (column 10, lines 20-38).

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Oleck et al.

14. Claims 1, 4, 6-7, and 9-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Wu et al.

Art Unit: 1754

Wu et al. (US 5,689,026) discloses a catalyst composition useful in hydrodealkylation processes. The catalyst generally comprises (a) about 50-95 % by weight beta zeolite, (b) about 0.1-10 % by weight nickel, (c) about 0.5-20 % by weight molybdenum, (d) about 0.1-10 % by weight sulfur, and (e) about 0-50% by weight inorganic binder (i.e. alumina, silica, silica-alumina) (column 2, lines 25-40). Wu et al. teaches that the atomic ratio of molybdenum to nickel is about 1:1 to about 3:1 (column 2, lines 38-40).

Wu et al. teaches that the catalyst can be prepared by combining the zeolite and the binder material, shaping, impregnating with solutions of nickel and molybdenum, and drying and calcining (column 2, lines 40-65).

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Wu et al.

15. Claims 1-3, 5-7, and 9-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ward.

Ward (US 5,275,720) discloses a catalyst composition useful in hydrocracking processes. The catalyst composition comprises hydrogenation components, zeolite beta, and a dealuminated Y zeolite (column 3, lines 20-30). The composition may further comprise an inorganic refractory oxide such as alumina, silica, or silica-alumina (column 7, lines 55-62). The reference teaches the use of zeolite beta in hydrogen form (column 4, lines 7-8). The reference further teaches the use of at least 5 weight percent, more preferably at least 10 or 20 weight percent, of each zeolite (column 8, lines 65-69).

Art Unit: 1754

Ward teaches the use of a group VI metal such as molybdenum or tungsten in combination with a group VIII metal such as nickel or cobalt as hydrogenation components (column 9, lines 25-35). The group VI metal is contained in amounts in the range of about 5-35 % by weight and the group VIII metal is contained in amounts in the range of about 1-15 % by weight (column 9, lines 45-55). The amounts disclosed by the reference appear to meet the instantly claimed molar ratios.

The catalyst is prepared by preparing an extrudate comprising the zeolites and refractory oxides in calcined form and then impregnating the support with solutions containing the desired metal(s) in dissolved form, and calcining (column 9, line 60 – column 10, line 15).

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Ward.

Claim Rejections - 35 USC § 103

16. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ward as applied to claims 1-3, 5-7, and 9-19 above.

Ward is applied as above for claims 1-3, 5-7, and 9-19.

Ward does not teach the sequence of steps recited in claim 31, i.e. impregnation of the oxide carrier with the metals of group VI and VIII, drying and calcining, and mixing with the beta zeolite.

However, with reference to column 10, lines 40-50, Ward teaches that one could co-mull the hydrogenation metal precursor, followed by addition of the zeolites to the co-mulled mixture, drying, and calcining steps. Ward further teaches that the purpose of

Art Unit: 1754

the calcination step is to convert the metal precursor into oxide form (column 10, lines 1-5).

In this case, the reference teaches all of the instantly claimed steps and there is no evidence that the manipulation of the order of these steps would have any substantial effect on the properties of the catalyst. It is considered that it would have been obvious to one having ordinary skill in the art at the time the invention was made to rearrange the order of the steps, with reasonable expectation of success. Because Ward teaches that the purpose of the calcination step is to convert the precursor salt to the active oxide form, one of ordinary skill would recognize that the step could be performed at different points in the preparation process, with the same end result.

Allowable Subject Matter

17. Claims 20-25 and 29-30 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter: regarding claim 20, the prior art of record does not teach or suggest a process for the preparation of a catalyst as set forth in claim 1, comprising the steps of preparing an alcoholic dispersion of beta zeolite, a metal of group VIII, and one or more oxide carriers, mixing the dispersion with an aqueous solution of a metal of group VIB, forming a gel, and aging the gel at a temperature of 10-40°C.

Art Unit: 1754

Regarding claim 21, the prior art of record does not teach or suggest a process for preparing a catalyst as set forth in claim 1, comprising the steps of preparing an alcoholic dispersion of beta zeolite and one or more organic compounds capable of generating the supporting oxide or oxides, mixing the dispersion with an aqueous solution of tetra-alkylammonium hydroxide to obtain a gel, aging the gel at a temperature in the range of 10-40 degrees C, drying, calcining, and impregnating with a solution of metals of group VI and VIII.

Regarding claim 22, the prior art of record does not teach or suggest a process for preparing a catalyst according to claim 1, comprising the steps of preparing an alcoholic dispersion of containing a soluble salt of the metal of group VIII and one or more organic compounds capable of generating the supporting oxide, mixing the dispersion with an aqueous solution containing soluble salts of group VI metals to form a gel, aging of the gel at 10-40°C, drying the gel, and mechanically mixing the dried gel with zeolite beta.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kraushaar-Czarnetzki et al. (US 5,853,566), Takahashi et al. (US 5,362,696), Flaherty, Jr. et al. (US 4,126,579), Tu (4,299,733), and Kittrell (US 3,536,606) all disclose catalyst compositions useful in hydrocarbon conversion processes and method of making such compositions.

Art Unit: 1754

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Ildebrando whose telephone number is (703) 305-0469. The examiner can normally be reached on Monday-Friday, 7:30-5, with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on (703) 308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-6078 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

CAI
August 12, 2001


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